EGR 53L – Fall 2009

LaTeX Assignment

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Lab Section 1, Tuesday 8:30-11:20
Due September 4, 2009

I have adhered to the Duke Community Standard in completing this assignment. I understand that a violation of the Standard can result in failure of this assignment, failure of this course, and/or suspension from Duke University.

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1 Equations

$$\int_{-\infty}^{\infty} u(\tau)u(t-\tau)\ d\tau = u(t)\int_{0}^{t} d\tau = tu(t)$$

$$\frac{df(x)}{dx} = \lim_{\Delta x \to 0} \frac{f(x+\Delta x) - f(x)}{\Delta x}$$

$$\det\left(\begin{bmatrix} a_{1,1} & a_{1,2} \\ a_{2,1} & a_{2,2} \end{bmatrix}\right) = a_{1,1}a_{2,2} - a_{1,2}a_{2,1}$$

$$D = \pm\sqrt{a^2\left(\frac{\xi+\eta}{2}\right) \pm \sqrt{a^4\left(\frac{\xi-\eta}{2}\right)^2 + a^2\mathrm{Ra}\xi}}$$

2 Tables using `tabular` and `array`

2.1 Using `tabular`

Chemical equation	Description
$\Delta G = \Delta H - T\Delta S$	`Gibbs free energy`
$\mathrm{H_2} + \frac{1}{2}\ \mathrm{O_2} \rightarrow \mathrm{H_2O}$	`Water`

2.2 Using `array`

Equation	Description
$\vec{v} = v_x\hat{\imath} + v_y\hat{\jmath} + v_z\hat{k}$	Resolution into Components
$v^2 = v_0^2 + 2a\Delta x$	Velocity formula

3 Comments

Things I learned in this assignment:

- Using the `align` environment to typeset equations
- Using $ to enter math mode in a line of text to type shorter mathematical expressions like 10^6 and Greek letters like Δ
- Using `mbox` to enter text mode in a math environment
- Changing the appearance of fonts to make words **bold**, *italics*, or `typewriter font`
- Using the `tabular` and `array` environments
- Using `listinginput` to import text files
- Using `epsfig` to import figures
- *Add another thing you learned here - your first choice.*
- *Add another thing you learned here - your second choice.*
- *Add another thing you learned here - your third choice.*

A Codes

A.1 Listing of sample header for original code

```
% [Function or Script Name]
% [Your Name]
% [Date Written]

% I have neither given nor received improper assistance in the
% completion of this assignment.  I understand that a violation of the
% statement can result in failure of this assignment, failure of this
% course, and/or suspension from Duke University.
% I have thus adhered to the Duke Community Standard in
% completing this assignment
% Signed: [Your acpub login ID]
```

A.2 Listing of sample header for modified code

```
% [Function or Script Name]
% [Your Name]
% [Date Modified]
% Based on: [Original Script or Function]
% Written by: [Original Author]

% I have neither given nor received improper assistance in the
% completion of this assignment.  I understand that a violation of the
% statement can result in failure of this assignment, failure of this
% course, and/or suspension from Duke University.
% I have thus adhered to the Duke Community Standard in
% completing this assignment
% Signed: [Your acpub login ID]
```

B Figures

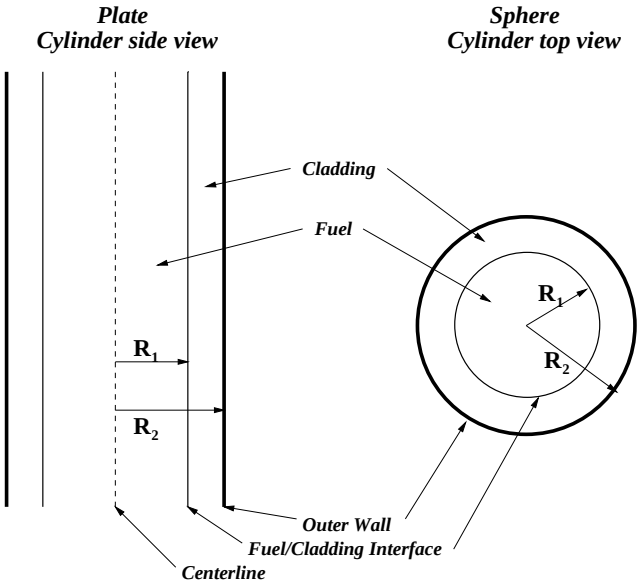

Figure 1: Drawing from ME 150L test.

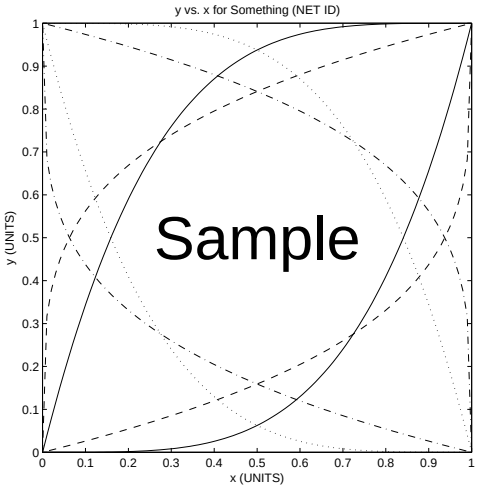

Figure 2: Sample MATLAB figure.